

Application No. 10/660,687

Reply to Office Action

REMARKS/ARGUMENTS*The Pending Claims*

Claims 1-17 are currently pending. Claims 1-17 are directed to a system for planarizing or polishing a composite substrate comprising a polishing composition and an abrasive.

Discussion of the Claim Amendments

Claim 1 has been amended to insert upper limits on the concentrations of the source of fluoride ions and the amine as disclosed in the specification at page 4, lines 7-10, and page 5, lines 13-15. No new matter has been added by way of this amendment.

Summary of the Office Action

The Office Action rejects claims 1-12 and 15-17 under 35 U.S.C. § 103(a) as allegedly unpatentable over International Patent Publication Number WO 00/00560 A2 (Steckenrider et al.) (hereinafter "the Steckenrider '560 publication"). The Office Action also rejects claims 13-14 as allegedly unpatentable over the Steckenrider '560 publication in view of U.S. Patent 5,938,505 (Morrison et al.) (hereinafter "the Morrison '505 patent").

Discussion of the Obviousness Rejections

As noted above, the Office Action rejects the pending claims as allegedly obvious over the Steckenrider '560 publication alone or in combination with the Morrison '505 patent. The Office Action asserts that the Steckenrider '560 publication discloses a polishing composition comprising fluoride ions, an amine, a base, water, and an abrasive. The Office Action further asserts that there is no evidence of criticality associated with the particular composition recited in the pending claims and that, therefore, the particular composition recited in the pending claims would have been obvious to a person of ordinary skill in the art as a result of routine experimentation. For the reasons delineated below, Applicants respectfully traverse.

Applicants submit that the combination of the components and the ranges of the components are critical for the preferential removal of silicon oxide. The evidence of the criticality of the combination of the components and the ranges of the components appears in the patent application as filed.

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In particular, Example 4 of the patent application reports on the oxide:nitride removal rate ratio observed with several compositions, including a composition that did not contain a source of fluoride ions and an amine (i.e., "Control"), a composition that contained both a source of fluoride ions and an amine but which falls outside the scope of the pending claims (i.e., Composition A), and four compositions that contained varying amounts of both a source of fluoride ions and an amine within the concentration ranges recited in the pending claims (i.e., Compositions B-E) (see specification page 13, line 18 – page 14, line 27). The resulting oxide:nitride removal rate ratios are reported in Table 2 of the patent application (see specification page 14). As demonstrated by the reported results, compositions having both a source of fluoride ions and an amine within the concentration ranges recited in the pending claims exhibited superior oxide:nitride removal rate ratios as compared to the other compositions.

Therefore, the combination of components and the concentrations of those components recited in the pending claims is critical to the superior performance of the claimed polishing systems and, in that respect, provide unexpectedly improved results in the preferential removal of silicon oxide over silicon nitride. Neither the Steckenrider '560 publication nor the Morrison '505 patent discloses the importance of using the combination of components and the concentrations of those components as recited in the pending claims for purposes of improving the oxide:nitride removal rate ratio. In order to further emphasize the differences between the present invention and the cited references, Applicants have amended the pending claims to recited upper limits on the concentration ranges of the source of fluoride ions and the amine.

In view of the foregoing, Applicants submit that the invention defined by the pending claims is unobvious over the Steckenrider '560 publication whether considered alone or in combination with the Morrison '505 patent.

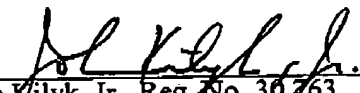
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Conclusion

The present invention as defined by the pending claims is patentable, and the outstanding rejections of the claims should be withdrawn for the reasons discussed herein. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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